# CoAP plugin

In order to install the CoAP Adaptation plugin some few actions are required:

1. Remove the BETaaS Adaptation Simulator

karaf

uninstall 235

1. Edit the *betaas.gateway.cfg* and include the path to the plugin configuration file (*server.xml*)

# CoAP settings

serversConfig = [*C:/data/servers/server.xml*](file:///C:/data/servers/server.xml)

1. Create the *server.xml* file structured as follow and put it in the path specified above:

<servers>

<server>

<name>Unipi01</name>

<ip>127.0.0.1</ip>

<port>5683</port>

</server>

<server>

<name>Unipi02</name>

<ip>127.0.0.1</ip>

<port>5684</port>

</server>

</servers>

**Note:** For each CoAP server that will be connected to the adapter you have to add a server tag with its children.

1. Deploy the CoAP adapter inside karaf

osgi:install mvn:org.eclipse.californium/californium-osgi/1.0.0-SNAPSHOT

osgi:install mvn:eu.betaas/betaas-adaptation-coap/0.0.1-SNAPSHOT

# CoAP Server simulators

You can run many CoAP servers, each server is an independent process running locally and exposes resources through the CoAP protocol. Obviously if you plan to run more than one CoAP server on the same machine, you must change the port of each server.

1. The CoAP server is hosted in:

cd *betaas-trials/coap-server-betaas*

1. The server is a simple java program structured in two different packages:

* *org.eclipse.californium.examples*
* *org.eclipse.californium.examples.resources*

The first package contains the CoAP server, while the second contains all the classes that are defined to implement, each one, a different kind of resource. For example, I already defined the TrafficResource, the GPSResource, the PIRResource and the StreetLampResource. The CoAP server reads a *config\_server.xml* file where there is the description of the resources exposed by the server itself. The structure of the *config\_server.xml* is the following:

<Resources>

<ClassNameResource deviceID="xxx" LocationIdentifier="xxx" latitude="xxx" longitude="xxx"></ ClassNameResource>

</Resources>

For example to add the resources adopted in the trials I have define the *config\_server.xml* as following:

<Resources>

<GPSResource deviceID="00001" LocationIdentifier="usr001" latitude="43.654987" longitude="10.436325"></GPSResource>

<StreetLampResource deviceID="00002" LocationIdentifier="Tiberio" latitude="43.655253" longitude="10.437969"></StreetLampResource>

<StreetLampResource deviceID="00003" LocationIdentifier="IntecsParking" latitude="43.656" longitude="10.437"></StreetLampResource>

<TrafficResource deviceID="00004" LocationIdentifier="FagianoII" latitude="43.657954" longitude="10.435742"></TrafficResource>

<TrafficResource deviceID="00005" LocationIdentifier="FortiI" latitude="43.658442" longitude="10.437698"></TrafficResource>

<TrafficResource deviceID="00006" LocationIdentifier="Calabresi" latitude="43.652212" longitude="10.437929"></TrafficResource>

<TrafficResource deviceID="00007" LocationIdentifier="FortiIII" latitude="43.654006" longitude="10.439433"></TrafficResource>

<TrafficResource deviceID="00008" LocationIdentifier="FortiII" latitude="43.656447" longitude="10.438477"></TrafficResource>

<TrafficResource deviceID="00009" LocationIdentifier="Tiberio" latitude="43.655170" longitude="10.437821"></TrafficResource>

<TrafficResource deviceID="00010" LocationIdentifier="FagianoI" latitude="43.659651" longitude="10.438061"></TrafficResource>

<TrafficResource deviceID="00011" LocationIdentifier="Giannessi" latitude="43.655589" longitude="10.436023"></TrafficResource>

<PIRResource deviceID="00012" LocationIdentifier="IntecsParking" latitude="43.656714" longitude="10.437342"></PIRResource>

<PIRResource deviceID="00013" LocationIdentifier="IntecsParking" latitude="43.656998" longitude="10.437418"></PIRResource>

</Resources>

1. To add new kind of resources you must:
   1. add a new class inside the *org.eclipse.californium.examples.resources* package and define the behavior of GET,POST,PUT and DELETE
   2. modify the *config\_server.xml*
   3. add an if clause to the main body of the CoAP server in *org.eclipse.californium.examples* in order o recognize the new resource in the XML file
2. To start a CoAP Server issue the following:

mvn clean install

java -jar target/coap-server-betaas-1.0.0-SNAPSHOT.jar <port> <path/to/config\_server.xml>